****

NCR ID: ECSed38924 Status: MERGED Submitted: 031224
NCR Class: OPERATIONS Project: OPS_PDS Enclosures: 8

NCR TITLE...
GSFC/SMC PDSIS is taking a day or two to ship granules orde

PROBLEM INFORMATION...
Build Name[*]: Drop 6A.08
Test Site[*]: GSFC DAAC
Detection Method[*]: Customer Use
Detected-In-Phase[*]: DAAC Activity
Test Case ID:
Machine Name:
Severity (1=Showstopper)[*]: 2
Priority: 023 Priority Date: 200401
High Priority: 020 Mode [*]: OPS
Trouble Ticket: SMC000000006351
DAAC Trouble Ticket: GSF000000011321
Submitter: ashelton
ANALYSIS INFORMATION...
Evaluate Engineer: aaljazra
Assigned To: aaljazra
Analysis Due Date(yymmdd): 040115

COST ANALYSIS INFORMATION...
Cost[*]: MEDIUM
Estimated Fix Time(hrs): 118
Estimated Fix Date(yymmdd): 040119
Est Num_SLOC: 35
Revised Fix Time (Hrs): 118
Revised Fix Date (yymmdd): 040120
TO BE FIXED INFORMATION...
Problem type[*]: source code
Recommended change[*]: source code
Implement Due Date (yymmdd):
Eng SW Release Name: TBD
Eng SW Release Date (yymmdd):
Quality of NCR: 4
Workaround Available? N

MERGE INFORMATION..
Resolution[*]: source code
Resolved by: aaljazra
Iteration: Drop 6A.08+
Indicate_SLOC[*]: Combination
Num_SLOC: 54
Fixing time (hrs): 118
Affect CSCI: PDS
Merge Build Id:
Documentation affected (Y/N)? N
Fix Date (yymmdd): 040121
Patch Release Name: TBD
Patch Release Date (yymmdd):
TE SW Release Name: TBD
TE SW Release Date (yymmdd):

********** Problem (Modified 031224 by ocoates) **********
Long Description :

GSFC/SMC PDSIS is taking a day or two to ship granules orders larder
that 2000 granules.

Problem:

Due to the recent changes in PDSIS from to process large granule orders for GDAAC, the PDSIS system seems to need a little tunining. It is taking up to 2 days for all granules to become complete in PDSIS after an order has been marked complete in PDS.

Impact: Slows down the quantity of Orders that we are able to ship out daily, we are processing a high priority job for a japan customer and this type of progress is not allowing us to meet our daily goals.

POC: Angela Shelton 301-614-5965
Secondary: Derrick Jones 301-614-5423
ocoates 12/23/03 15:31:16
Copy of ticket has been sent to Ann A. for review.

<< end of description >>

SUBMITTER INFO:
Submitter Name: Angela Shelton
Submitter Email: ashelton@g0mos16.gsfcmo.ecs.nasa.gov
Submitter Phone: 301-614-5965

********** IPT (Modified 040119 by aaljazra) **********
1/19/03: Plan merge of modified stored procedure Tue. Jan. 20th. Will clone this NCR for the database tuning work.

1/15/04: DBDM researched utilities to collect and analyze database performance statistics. Two tools are tested, (i) utlbstat and utlestat and (ii) trace and tkprof. The instance parameters can tuned based upon analysis using (i). The SQL statements performance can be measured using (ii). See enclosure DB_Tuning for details.

1/13/04: Sent Eng.SW to LPDAAC. They are testing. It worked in test mode, so are trying in OPS.
01/12/04:Sent Eng.SW to GDAAC. Addresses the slowness in the PDS completion cron. Modified stored procedure so it would run faster. Still need to look at DB tuning & possible slowness in the shipping step of the PDSIS where data is cleaned up & shipping labels/packing lists produced.

********** TT6398(EDC) (Added 040113 by ocoates) **********
Ticket-Id : SMC000000006398
Unique-Identifier : EDC000000014426
Short Description : PDS generate error "ORA-01555:snapshot too old: rollback
   segment too small"
Long-Description : The error message first appeared on Oct 01, 2003 in table
   PDSSA.APT_APP_ERRORS. Then
   occurred twice on Oct 02, 2003, twice on Oct 17, 2003, once on Nov

11,
2003, once on Jan 5, 2004,
11 times on Jan 6, 2004, 20 times on Jan 7, 2004. Oracle hung in the
morning of Jan 6, 2004, see
TT14414. A large number of transaction log are generated and fill up
the disk /data3/ with rate
1~2Gbyte/hour. Re-direct archiver to load transaction files to disk
/pdsis/. The above error message is still
coming. There are numbers of "commit" statement in the
PDS_COMPLETION_PKG which cause Oracle not be able to get the required
rollback information because the previous session changes have
generated rollback information that has overwritten it. So as a
result,
Oracle is unable to rollback the (commited) transaction entries to
attain the original rollback segment transaction slot. It appears
that
there is bug in PDS_COMPLETION_PKG procedure.
See additional information in the Resolution Log.

LP DAAC POC: Tom Lines 605.594.2602 tglines@usgs.gov
Detailed Resolution Log :
Resolution Log (End User Sees) : 01/13/04 09:21:41 ARSuser
01/13/04 08:19:15 arsystem

01/13/04 07:47:37 AM tglines
The problem is with the 'commit' being inside a loop. When a large
number of unit finish and the completion package runs, the commits
eat
up the extents and the rollback segments start to get overridden (at
least this is what I think happens). This seems to happen if an order
is for more than 500 units and the system is busy with other orders.
I
was able to work around this error by only 'completing' 100 units at
a
time and running the completion package for each 100 units. This is a
very long and labor intensive workaround especially if the number
gets
over 1000. I have included the offending package source code:

```
CREATE OR REPLACE Procedure pds_completion_pkg
AS
loop_ctr number := 0;
 rtn_code number;
CURSOR c1 IS
    Select a.pdsinfokey, a.media_id, a.ppf_key, a.job_key,
           a.order_nbr, a.unit_nbr,
           a.product_format, a.product_density, a.tape_blocking,
           a.storage_location, a.directory_location, a.prod_code,
           a.output_specs, a.priority_code, a.pds_project,
           a.copies_each, a.date_due
      from pwt_pds_work_tbl a
     where a.status    = 'C'
       and exists (Select null from pdt_pdsinfo b
                          where b.pdsinfokey = a.pdsinfokey);
CURSOR c2 IS
    Select a.pdsinfokey, b.job_key
      from pdt_pdsinfo a, pwt_pds_work_tbl b
```

```
           where a.status    = 'R'
             and a.pdsinfokey = b.pdsinfokey;
      CURSOR c3 IS
          Select order_nbr, output_specs
           from  pwt_pds_work_tbl
           where status = 'C';
      Begin
             Begin
             For c3_rec in c3 LOOP
               Begin
                update pdsis_units_tbl
                 set output_specs = c3_rec.output_specs
                  where order_nbr = c3_rec.order_nbr;
                   commit;
                Exception when others
                 Then
                  dbproc_insert_errors(sqlcode, sqlerrm, 'UNABLE TO
UPDATE
   PDT_PDSINFO ',
                    null,null,null, 'PDS_COMPLETION_PKG', null);
                     commit;
               End;
             End loop;
             For c1_rec in c1 LOOP
                 Begin
                     loop_ctr := 0;
                     rtn_code := 1;
       Begin
                         update pdt_pdsinfo



    Schema: RelB-Trouble Tickets
                            set job_key = c1_rec.job_key,
                                status = 'C',
                                media_id = c1_rec.media_id,
                                ppf_key = c1_rec.ppf_key,
                                product_format = c1_rec.product_format,
                                product_density =
c1_rec.product_density,
                                tape_blocking = c1_rec.tape_blocking,
                                storage_location =
   c1_rec.storage_location,
                                directory_location =
   c1_rec.directory_location,
                                prod_code = c1_rec.prod_code,
                                output_specs = c1_rec.output_specs,
                                priority_code = c1_rec.priority_code,
                                pds_project = c1_rec.pds_project,
                                copies_each = c1_rec.copies_each,
     date_due = c1_rec.date_due
                           where pdsinfokey = c1_rec.pdsinfokey;
                           commit;
                           Exception when others
                               Then
                                   rollback;
                                   loop_ctr := -1;
```

```
                                dbproc_insert_errors(sqlcode,
sqlerrm,'UNABLE TO UPDATE PDSINFO UNIT '

||c1_rec.order_nbr||'/'||to_char(c1_rec.unit_nbr),null,null,null,
                                   'PDS_COMPLETION_PKG',null);
                                commit;
                    End;
                        Begin
                            if loop_ctr <> -1
                                then
                                delete pwt_pds_work_tbl
                                 where pdsinfokey = c1_rec.pdsinfokey;
                                commit;

                            end if;
                        Exception when others
                            Then
                            rollback;
                            loop_ctr := -1;
                            raise_application_error(-20000,'UNABLE TO
DELETE PDS_WORK UNIT '||

c1_rec.order_nbr||'/'||to_char(c1_rec.unit_nbr));
                            commit;
                        End;
                    if loop_ctr <> -1
                        then
                        commit;
                    else
                        rollback;
                    end if;
                Exception when others
                    Then
                        rollback;
                        loop_ctr := -1;
                        dbproc_insert_errors(sqlcode, sqlerrm, 'UNABLE
TO DELETE PDS_WORK UNIT '||

c1_rec.order_nbr||'/'||to_char(c1_rec.unit_nbr), null, null, null,
                             'PDS_COMPLETION_PKG', null);
                          commit;
                End;
            End loop;
            For c2_rec in c2 LOOP
                Begin
                    delete pwt_pds_work_tbl
                     where pdsinfokey = c2_rec.pdsinfokey;
                    commit;



 Schema: RelB-Trouble Tickets
                Exception when others
                    Then
                        dbproc_insert_errors(sqlcode, sqlerrm,
                          'UNABLE TO DELETE PDS_WORK or UPDATE PDSINFO
UNIT ',
```

```
                 null, null, null, 'PDS_COPLETION_PKG', null);
                        commit;
                End;
                Begin
                    update pjt_pdsinfo_jobs
                       set bad_key = 'Y'
                     where job_key = c2_rec.job_key;
                    commit;
                Exception when others
                     Then
                         dbproc_insert_errors(sqlcode, sqlerrm, 'UNABLE
TO
   UPDATE PJT_PDSINFO_JOBS ',
                           null, null, null, 'PDS_COMPLETION_PKG',
null);
                         commit;
               End;
             End loop;
             Exception when others
                 Then
                     dbproc_insert_errors(sqlcode, sqlerrm, 'UNABLE TO
   INSERT AND UPDATE PDSINFO UNIT ',


                       null, null, null, 'PDS_COMPLETION_PKG', null);
                     commit;
             End;
      END pds_completion_pkg;



Submitter Home DAAC : EDC
Submitter Name : Chris Z Chen
Submitter Phone :
Submitter eMail : zchen@usgs.gov
Assigned-Priority : Medium
Submitter Impact : Medium
Create-date : 01/13/04 09:21:41
Close-date :




********** DB_Tuning (Added 040115 by wyang) **********
The utlbstat and utlestat are used to collect oracle instance
statistics.
The steps are:

login as oracle on DIG06 host

cd /usr/ecs/OPS/COTS/oracle/admin/pds/udump

pds

-- To point to the pds instance
-- if the above alias is not set, then export ORACLE_SID=pds
```

```
svrmgrl
SVRMGR> connect internal

SVRMGR> @/usr/ecs/OPS/COTS/oracle/8.1.6/rdbms/admin/utlbstat


<wait one hour>
...

SVRMGR> @/usr/ecs/OPS/COTS/oracle/8.1.6/rdbms/admin/utlestat
SVRMGR>  exit


ll report.txt
mv report.txt report.txt.<DAAC_name>_pds.<Time_stamp_YYYYMMDD_HHMM>

(2) The instructions for using TRACE and TKPROF:

ALTER SESSION SET TIMED_STATISTICS = true;
ALTER SESSION SET MAX_DUMP_FILE_SIZE = 10240000;
ALTER SESSION SET SQL_TRACE = true;

<execute the SQL statements, stored procedures, packages, etc.>
<e.g.,  execute pds_completion_pkg>


ALTER SESSION SET TIMED_STATISTICS = false;
ALTER SESSION SET SQL_TRACE = false;
exit

<identify the trace file generated by the TRACE in user_dump_dest,
which is /usr/ecs/OPS/COTS/oracle/admin/pds/udump directory>
cd /usr/ecs/OPS/COTS/oracle/admin/pds/udump

which tkprof
/usr/ecs/OPS/COTS/oracle/8.1.6/bin/tkprof

e.g., ora_47969307.trc

/usr/ecs/OPS/COTS/oracle/8.1.6/bin/tkprof ora_47969307.trc ora_out.txt
The formatted output file ora_out.txt is created by running tkprof.
This output file can be used to analyze the performance of the SQL
statements.


------------------------------------------------------------------------

Based upon the utlbstat/utlestat data generated at DAACs and EDF,
the parameters below are adjusted for improving the oracle instance
performance:

shared_pool_size 54000000   -- 54M vs 15M (GSFC) 25M (EDC)
db_block_buffers 9600       -- 76M vs 24M (GSFC) 48M (EDC)
log_buffer 1024000          --  1M vs 32K (GSFC) 64K (EDC)

SORT_AREA_SIZE    2621440   --  2.5M
SORT_AREA_RETAINED_SIZE    2621440   --  2.5M
```

The log file size needs to be increased to reduce the number of the archived log files. The increasing from the current 5M (GSFC) to 15M or 30M or 45M depends on the frequency and number of log files created by the archive process.

After the SQL statements are improved, the rollback segements need to be monitored. The number and size of rollback segments are to be reassessed. If more are needed, the current RBS datafile in /or2/data/pds/rbspds.dbf can be resized as needed upto 960M. If more are needed, /or1/data/pds/rbspds.dbf and /or3/data/pds/rbspds.dbf can be added.

********** IPT History (Modified 040116 by aaljazra) **********
01/15/2004: DBDM researched utilities to collect and analyze database performance statistics. Two tools are tested, (i) utlbstat and utlestat and (ii) trace and tkprof. The instance parameters can tuned based upon analysis using (i). The SQL statements performance can be measured using (ii). See enclosure DB_Tuning for details.

01/13/04: Sent same engineering software to LPDAAC. They are testing. It worked in test mode, so are trying in OPS.

01/12/04: Sent engineering software to GDAAC consisting of PDS completion stored procedure that should run faster. Still need to look at database tuning and possible slowness in the shipping step of the PDSIS where data is cleaned up and shipping labels/packing lists produced.

********** Analysis (Added 040116 by aaljazra) **********
Please describe your Analysis:

Need to reduce the commits in pds_completion_pkg stored procedure so the rollback seqments in the database do not fill up.

********** Resolution (Added 040121 by aaljazra) **********
Please describe your resolution to this problem:

Modified pds_completion_pkg stored proc to issue commit commands less often.

********** Previous Merge Build IDs (Added 040121 by aaljazra) **********
Please enter any related Merge Build ID(s) information:

1) M040116003 - relb

2) M040116002 - 6a08

3) M040116001 - 6a08ebf1

4)

********** History **********
bugs 1010629 000000 Submitted by Remedy via ddts@eos.hitc.com
xddts 031224 084718 Enclosure "Problem" edited by ocoates
xddts 040105 163230 N -> A (Assign-Eval to aaljazra) by aaljazra
batchbug 040108 201557 Priority changed to 20 by ddts
xddts 040112 104624 Enclosure "IPT" added by aaljazra
xddts 040112 104658 A -> A (Assign-Eval to aaljazra) by aaljazra
xddts 040113 113430 Enclosure "TT6398(EDC)" added by ocoates
xddts 040114 170441 Enclosure "IPT" edited by aaljazra
xddts 040115 152012 Enclosure "IPT" edited by wyang
xddts 040115 161535 Enclosure "DB_Tuning" added by wyang
batchbug 040115 204352 Priority changed to 23 by ddts
xddts 040115 204826 Enclosure "IPT History" added by dstepp
xddts 040115 205930 Enclosure "IPT" edited by dstepp
xddts 040116 110226 Enclosure "IPT" edited by aaljazra
xddts 040116 110314 Enclosure "IPT" edited by aaljazra
xddts 040116 110352 Enclosure "IPT History" edited by aaljazra
xddts 040116 110905 Enclosure "Analysis" added by aaljazra
xddts 040116 110905 A -> B (Cost-Analyzed) by aaljazra
xddts 040116 110927 B -> R (Assign-Implement) by aaljazra
xddts 040119 121707 Enclosure "IPT" edited by aaljazra
xddts 040119 121712 Fields modified by aaljazra
xddts 040121 161654 Enclosure Resolution added by aaljazra
xddts 040121 161825 Enclosure Previous Merge Build IDs added by aaljazra
xddts 040121 161825 R -> M (Merged) by aaljazra